

CLAIMS

What is claimed is:

- 5 1. A circuit board module, comprising:
 a circuit board;
 a circuit board component mounted to the circuit board; and
 a heat sink assembly including:
 - 10 a base member which has a first edge and a second edge,
 the base member being configured to operate as a thermal conduit
 between a first location proximate to the circuit board component
 and a second location distal to the circuit board component;
 a first rail member coupled to the base member along the
 first edge of the base member and a second rail member coupled to
15 the base member along the second edge of the base member; and
 an actuation mechanism coupled to the base member, the
 actuation mechanism being configured to move portions of the first
 and second rail members toward each other when the base member
 resides at the first location to fasten the base member to the circuit
20 board component.
- 25 2. The circuit board module of claim 1 wherein the base member defines a first
 groove along the first edge and a second groove along the second edge, wherein
 the first rail member defines a first hinge which engages with first groove defined
 by the base member along the first edge, and wherein the second rail member
 defines a second hinge which engages with the second groove defined by the base
 member along the second edge.

3. The circuit board module of claim 1 wherein the first rail member defines a first substantially elongated surface which is configured to assert a first distributed contact force onto the circuit board component in response to movement of the actuation mechanism; and wherein the second rail member defines a second substantially elongated surface which is configured to assert a second distributed contact force onto the circuit board component in response to movement of the actuation mechanism.
4. The circuit board module of claim 1 wherein each of the first and second rail members includes an actuation mechanism contacting portion and a component contacting portion which are integrally joined together to provide that rail member with an L-shaped cross-section.
5. A heat sink assembly, comprising:
 - a base member which has a first edge and a second edge, the base member being configured to operate as a thermal conduit between a first location proximate to a circuit board component and a second location distal to the circuit board component;
 - a first rail member coupled to the base member along the first edge of the base member and a second rail member coupled to the base member along the second edge of the base member; and
 - an actuation mechanism coupled to the base member, the actuation mechanism being configured to move portions of the first and second rail members toward each other when the base member resides at the first location to fasten the base member to the circuit board component.

6. The heat sink assembly of claim 5 wherein the base member defines a first groove along the first edge and a second groove along the second edge, wherein the first rail member defines a first hinge which engages with first groove defined by the base member along the first edge, and wherein the second rail member defines a second hinge which engages with the second groove defined by the base member along the second edge.
7. The heat sink assembly of claim 6 wherein the base member defines, as the first groove, a first rounded socket along the first edge; wherein the base member defines, as the second groove, a second rounded socket along the second edge; wherein the first rail member defines, as the first hinge, a first rounded lip; and wherein the second rail member defines, as the second hinge, a second rounded lip.
8. The heat sink assembly of claim 7 wherein each of the first and second rounded sockets defined by the base member has a circular cross-section, and wherein each of the first and second rounded lips respectively defined by the first and second rail members has a circular cross-section that substantially mirrors that of the first and second rounded sockets defined by the base member to enable each of the first and second rail members to smoothly pivot relative to the base member in a hinge-like manner in response to movement by the actuation mechanism.
9. The heat sink assembly of claim 5 wherein the first rail member defines a first substantially elongated surface which is configured to assert a first distributed contact force onto the circuit board component in response to movement of the actuation mechanism; and wherein the second rail member defines a second substantially elongated surface which is configured to assert a second distributed

contact force onto the circuit board component in response to movement of the actuation mechanism.

10. The heat sink assembly of claim 9 wherein the circuit board component extends
5 along an X-Y plane when residing at the first location, and wherein the first and second rail members are configured to simultaneously assert the first and second distributed contact forces substantially toward each other within the X-Y plane in response to movement of the actuation mechanism.
- 10 11. The heat sink assembly of claim 9 wherein the first and second rail members are configured to assert the first and second distributed contact forces onto a common side of the circuit board component and at least partially toward the base member in response to movement of the actuation mechanism.
- 15 12. The heat sink assembly of claim 5 wherein each of the first and second rail members includes an actuation mechanism contacting portion and a component contacting portion which are integrally joined together to provide that rail member with an L-shaped cross-section.
- 20 13. The heat sink assembly of claim 12 wherein the actuation mechanism includes displacement members which, when coupled to the base member, are configured to pivotally displace the actuation mechanism contacting portions of the first and second rail members to pivot the contacting portions of the first and second rail members toward each other.

14. The heat sink assembly of claim 13 wherein the each displacement member includes (i) a threaded portion which threads into a respective threaded aperture defined by the base member and (ii) a head portion, coupled to the threaded portion, which is configured to engage an end of a torque wrench to provide that displacement member with rotational movement and linear displacement in response to rotation of the torque wrench.
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15. A heat sink assembly, comprising:
- 10 a base member which has a first edge and a second edge, the base member being configured to operate as a thermal conduit between a first location proximate to a circuit board component and a second location distal to the circuit board component;
- a first rail member coupled to the base member along the first edge of the base member and a second rail member coupled to the base member along the second edge of the base member; and
- 15 means for moving portions of the first and second rail members toward each other when the base member resides at the first location to fasten the base member to the circuit board component.
- 20 16. The heat sink assembly of claim 15 wherein the base member defines a first groove along the first edge and a second groove along the second edge, wherein the first rail member defines a first hinge which engages with first groove defined by the base member along the first edge, and wherein the second rail member defines a second hinge which engages with the second groove defined by the base member along the second edge.
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17. The heat sink assembly of claim 15 wherein the first rail member defines a first substantially elongated surface which is configured to assert a first distributed contact force onto the circuit board component in response to actuation of the means for moving; and wherein the second rail member defines a second substantially elongated surface which is configured to assert a second distributed contact force onto the circuit board component in response to actuation of the means for moving.
18. The heat sink assembly of claim 15 wherein each of the first and second rail members includes an actuation mechanism contacting portion and a component contacting portion which are integrally joined together to provide that rail member with an L-shaped cross-section.
19. A method for attaching a heat sink assembly to a circuit board component, the heat sink assembly including a base member, a first rail member coupled to the base member along a first edge of the base member and a second rail member coupled to the base member along a second edge of the base member, the method comprising:
- spreading ends of the first and second rail members of the heat sink assembly apart to provide clearance for the circuit board component;
 - positioning a base member of the heat sink assembly proximate to the circuit board component; and
 - moving the ends of the first and second rail members of the heat sink assembly toward each other to fasten the base member to the circuit board component.

20. The method of claim 19 wherein moving the ends of the first and second rail members of the heat sink assembly toward each other includes:
- rotating threaded displacement members which are configured to linearly displace relative to the base member of the heat sink assembly to pivot the first and second rail members relative to the base member in a hinge-like manner.
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